Testimony

of Morgan Reed
Executive Director
The Association for Competitive Technology

before the
Committee on Energy and Commerce
Subcommittee on Commerce, Manufacturing, and Trade

on

Where the Jobs Are: Moving the Economy with Mobile Apps

July 20, 2012

Chairman Bono Mack, Ranking Member Butterfield, and distinguished members of the Committee: My name is Morgan Reed, and I thank you for holding this important hearing examining innovations in the online space and the implications for public policy.

I am the executive director of the Association for Competitive Technology (ACT). ACT is an international advocacy and education organization for people who write software programs-referred to as application developers. We represent over 5,000 small and mid-size IT firms throughout the world and advocate for public policies that help our members leverage their intellectual assets to raise capital, create jobs, and innovate.

While I am here today on behalf of our members, I am also here representing myself – I am a developer as well. Having worked on projects ranging from Linux networking tools to client/server protocols, I still keep my iOS license up to date, even if I no longer have the cutting edge skills of my younger days.

My goal today is to explain the evolving nature of the mobile application industry, the business challenges we face, and the public policy issues that we encounter.

Specifically, app developers have three key messages for the members of the Committee:

1. **The app ecosystem is an unqualified success story led by U.S. based small businesses with significant geographic diversity.**

2. **Apps are moving beyond the obvious consumer entry point and are expanding into mobile health, enterprise and other networked devices.**

3. **Our public policy challenges include inadequate bandwidth and spectrum, intellectual property (IP) protection abroad, regulatory clarity for new markets including health, and proper consumer data privacy protection.**

The App Ecosystem and Job Creation

I spend a significant portion of my time speaking to non-developer audiences who want to know about the state of the mobile apps economy. Unlike other industries, I find that I have to update my numbers for every speech, not just once or twice a year. Just two years ago, total industry revenues were $3.8 billion and expected to rise to $8.3 billion.[i] However, by the end of last we already reached $20 billion and are now projected to reach $100 billion by 2015.[ii] This is a meteoric rise for an app economy that didn't even exist four years ago.

The explosive growth of smartphones and tablets is enabling the success of the app economy. Sales of these devices continue to outpace all predictions and are providing a huge boost to our economy. Total smartphone sales in 2011 reached 472 million units and accounted for 31 percent of all mobile device sales, up 58 percent from 2010. In the United States and Europe, smartphones sales have overtaken feature phones and the gap is widening.

Smartphones derive considerable value from the apps that run on them. Consumers are attracted to phones based on the functionality these programs provide. Telephone companies

and handset makers have devised entire ad campaigns highlighting apps run on their platforms. "There's an app for that" is probably one of the most recognizable ads in the technology space.

It should come as no surprise that the growth of the app industry has been a dramatic success story, even in the face of our enduring economic slowdown. While both Blackberry and Microsoft had early app stores, the app market received a huge boost in 2008 when Apple launched the App Store which tied to its iPhone and allowed independent developers to sell applications. Since then, BlackBerry users have downloaded over 3 billion apps from more than 28,000 developers, Android downloads have hit 20 billion, paying $550 million to developers, and over 30 billion apps have been downloaded for Apple's iOS, earning developers over $5 billion dollars.

This success has had a dramatic impact on job creation. ACT's study in 2011 estimated that the current mobile apps economy has created, saved, or supplemented more than 600,000 jobs nationwide across iOS, Android, Windows Phone 7, and Blackberry platforms. Another study by TechNet showed nearly 500,000 jobs created by the app economy on the major platforms alone.

ACT July 2012 Study of Top 800 Apps: Findings and Analysis

ACT has recently completed a new analysis of the current mobile app ecosystem, this time examining apps not only by revenue, but also by type. We looked at the top 800 apps across the Productivity, Education, Business, and Entertainment categories.

The results of our research showed three key results:

1. **78 percent of the top U.S. app developers are small businesses, with companies based heaviest in California, but with significant regional diversity, especially Business and Education applications.**

2. **Games dominate the app store revenue charts and the vast majority of the highest revenue apps use in-app purchasing.**

3. **While the presence of foreign app companies in the American market is growing, U.S. developers still make a wide majority of apps and even command a 22 percent share of Chinese app market revenues.**
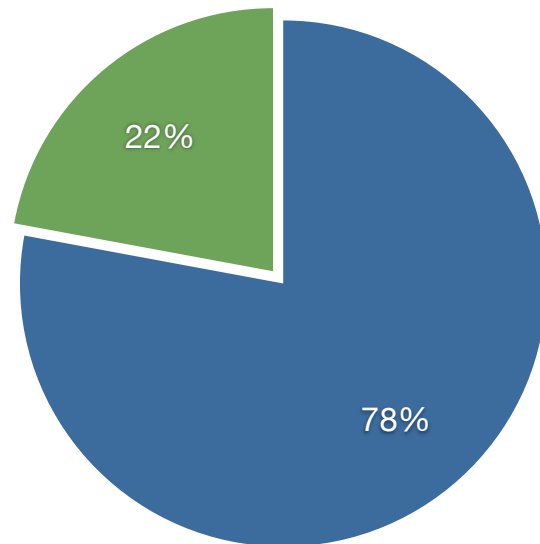
BIG VS. SMALL

Size of App Developers by Category

Consistent with findings from earlier ACT research, we found that the vast majority of U.S. mobile app companies – 78% – are small businesses.

Games	Education	Productivity	Business
22% / 78%	13% / 87%	22% / 78%	29% / 71%
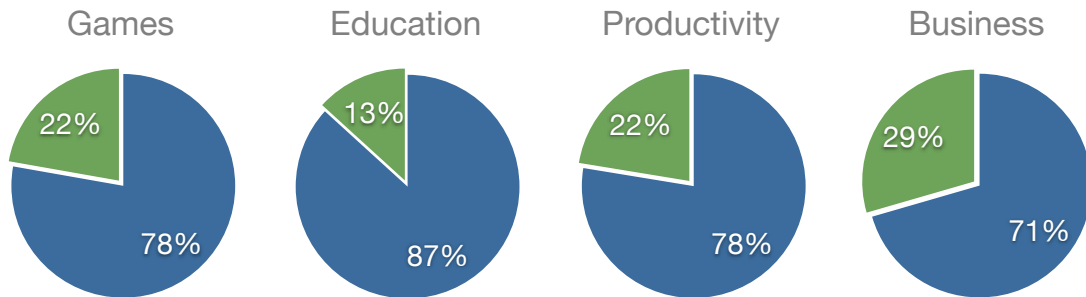
● Small Business
● Large Business

Average Across All Categories

22%

78%

According to a 2011 study by the Small Business Administration Office fo Advocacy, small business is where innovation and job creation area at their greatest and this is reflected in the type of apps that are succeeding. [iii] Our research found that 87 percent of education apps and 78 percent of game apps were made by small business companies. Particularly notable in these innovative categories are education apps on tactile mobile devices that make education concepts accessible to the very young and touchscreen game apps that are tremendously successful, appealing to all age ranges.

The business category had the highest number of apps distributed by large companies, due primarily to the number of apps developed by large businesses to connect mobile users with their existing services, such as PayPal, UPS and FedEx.   However, our polling of members suggests that many of the "large business" apps were not built internally, but were built by small contract app development companies, like Zco, based in New Hampshire, or Vertigo from California.

APPS ACROSS AMERICA
App Developers Span the Entire Country

Games	Education	Productivity	Business
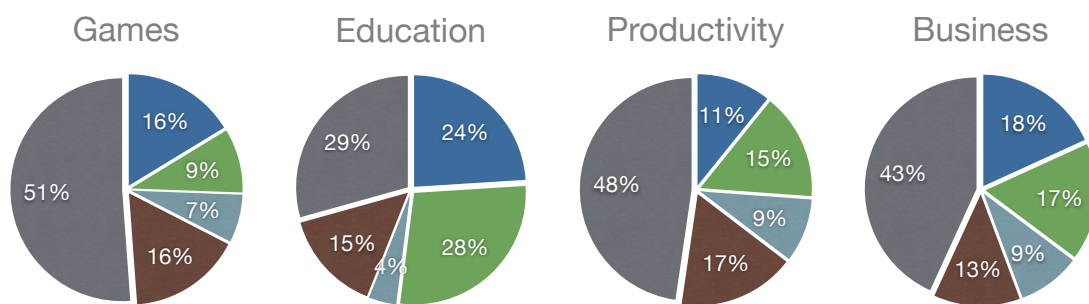
The geographic diversity of app companies varies greatly among categories. Over half of the top game apps are produced internationally (52 percent) and among U.S. mobile game companies, 42 percent of the top apps were developed in California.

However, more geographic diversity can be seen in other categories. 68 percent of the education games were made by U.S. app makers and at least 60 percent of those were made by companies located outside of California. Similar dominance of the U.S. market can be seen in business apps, where U.S. app companies made over two thirds of the top apps.
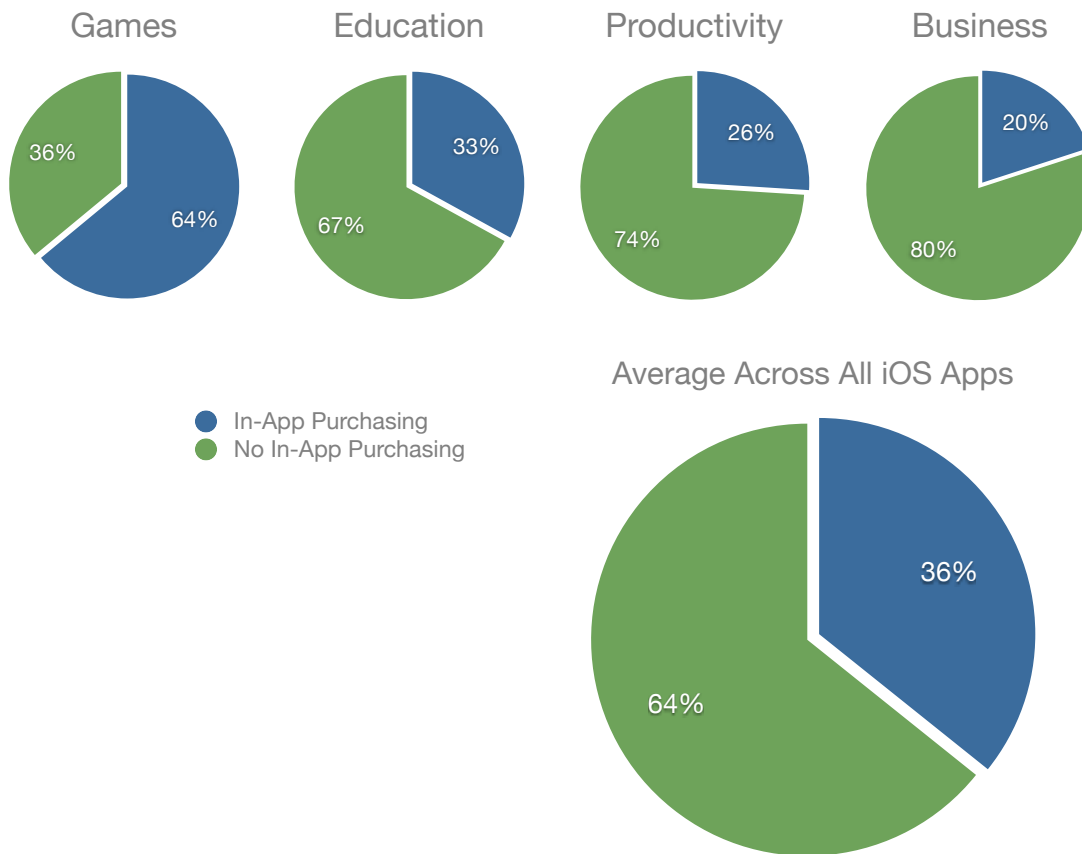
Legend:
- Northeast
- Midwest
- California
- South
- West

Average Across All Categories
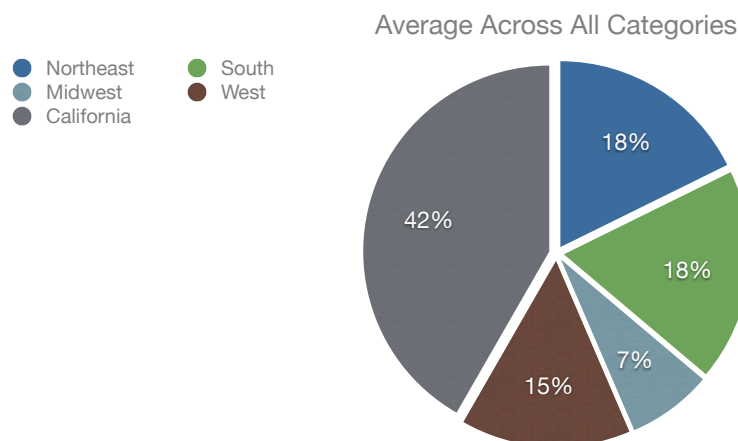
RISE OF IN-APP PURCHASING

Games Dominate, but Other Segments Find Uses

Almost all of the top grossing mobile apps are games; 84 percent of both the iPhone and Android platforms. This is an area where we are seeing the most dramatic changes in the mobile marketplace and much of it has to do with the growth of in-app purchasing. This business model allows users to make purchases within the app without having to return to the app store. Typically, these added expenses are for additional features or new game levels.

According to leading mobile app analytics company Flurry, in 2011 24 percent of revenue came from mobile advertising, 24 percent App sales, and 52 percent in-app purchases.
Research firm IHS predicts that in-app purchasing will generate $5.6 billion in 2012, up from $970 million in 2011.[iv]

Games	Education	Productivity	Business
36% / 64%	67% / 33%	74% / 26%	80% / 20%

In-App Purchasing
No In-App Purchasing

Average Across All iOS Apps

36%
64%

New Opportunities to Grow

While current research has focused on consumer facing mobile apps, there's another wave of innovation on the horizon. Mobile apps will have a significant impact at the enterprise level over the next 12 to 24 months, with nearly every major corporation and government agency publically adopting tablet computers, instituting bring your own device (BYOD) policies and developing internal application "stores" for use by employees and contractors.

This sea change will improve efficiencies and create new workflows inside of corporations, but it also provides real opportunities for developers to expand beyond the 99¢ price point or ad-supported models.

Educators are also exploring the benefits that app-powered tablet devices can have in the classroom. Just a few months ago, the state of Alabama passed legislation that would give every student a tablet to use for books and class work. This will provide every student access to advanced learning tools that touchscreen devices provide, while also reducing the weight of our children's backpacks. The dramatic success certain apps have had providing individualized teaching and assistance to special needs children cannot be understated.

We also see great potential for mobile apps to lower costs, improve health outcomes and healthcare delivery. I'm honored to be on the advisory council for mHIMSS, the mobile initiative of the largest health IT membership association. Through ACT and organizations like mHIMSS our members are working on improving healthcare through the use of mobile and wireless technologies.

Finally, the form factor your think of today is already obsolete. Apps provided through a managed or "curated" storefront will be part of every connected device in the future.   You won't connect your phone to your car to use an app, your car will have apps all on its own.

Digging Deeper on Mobile Health

The opportunities for apps within healthcare are extraordinary. Wireless patient monitoring alone is expected to be $20.9 billion dollar business in U.S. by 2016, and the U.S. government has already committed 38.7 billion dollars to help doctors convert from paper to electronic health records.

But both remote monitoring and electronic health records start as analogs to how we do things in today's non-digital world. There is a new set of opportunities for mobile apps to help improve patient care by adding new kinds of treatment, and even as a prescribed part of a patient's treatment.

One company that is exploring this possibility is Happtique. Happtique is a startup created with a goal of developing an internal applications store for hospital systems that manages, monitors and plans to certify health care apps. While it is a startup, it a subsidiary of the Greater New York Hospital Association (GNYHA), an association comprising nearly 250 hospitals and continuing care facilities throughout New York New Jersey, Connecticut, and Rhode Island.

Happtique is now launching a trial program that would enable physicians to prescribe mHealth apps to patients. They believe (and the existing research supports) that increased physician-to-patient engagement will increase the likelihood that patients will take their medication and monitor their health conditions more closely (e.g., provide innovative physical therapy tools for musculoskeletal conditions, and allow fitness specialists to monitor the improvement of patient conditioning).

Happtique has built a trial prescribing catalog on both iOS and android platforms which will give doctors in the program the ability to prescribe an app, and have that app be part of a treatment that is understood by payers, providers and patients.

If Happtique's model is successful, we fully expect that internal app stores will provide patients and doctors a new way to have access to valuable technology in a safe, tested way.

What is "Mobile" Anyway?

While we currently look to our phone or tablet when we discuss apps, we may be soon turning to our automobile. In March of 2011, Tesla announced that the much-hyped Model S electric sedan will support third-party apps and text-to-voice capabilities.

Tesla CEO Elon Musk said:
 "*We want people to develop car-specific applications* [for the Model S]," he told the audience. "*And text-to-speech technology can address some of the issues with driver distraction.*"

The Tesla S features a 17-inch touchscreen console, and car fans and investors have long suspected apps might be part of the Model S plan. However Musk's decision to make this touchscreen available to third-party developers is a major move forward for the developer community.

Microsoft's Xbox has become a huge hit with kids, but the facial and body recognition software that powers the Kinect has been harnessed by app developers to provide "touchless" operating room technology, allowing doctors to manipulate and view X-rays and records without violating the sterile surgical environment.

Public Policy Challenges to Our Amazing Growth

 For app makers, our public policy concerns fall into three basic categories: making sure we can get our applications to customers, that our property rights are respected, and that we have regulatory clarity for new markets (including health), and data privacy.

 Getting the App to the Customer

While our apps are tethered to devices, the real value often comes from our devices being untethered to any specific location. With ubiquitous high-speed networks, IT workers can remotely monitor the health of their infrastructure; employees can participate in online business meetings; students and professors can take part in online discussions, all wirelessly. Content of all sorts, from work documents to entertainment, can now be stored and accessed from "the cloud" with availability anywhere there is a mobile signal.

But all of these applications require wireless bandwidth dependent on increasingly congested spectrum.

Moreover, our developers have not stopped innovating, and neither have the devices on which we run. Improved mobile device resolution and increased wireless speeds will pose new challenges for app developers rooted in scarce spectrum. For example, Apple's newest iPad has a "Retina" display with a greatly improved graphics resolution capable of delivering high definition entertainment and gaming content to consumers. Apple's competitors can be expected to follow suit. These advancements will provide additional opportunities for app developers to create innovative apps that utilize these capabilities.

However, the very act of finding new, innovative ways to utilize improved screen resolutions creates serious bandwidth challenges. Carriers are rolling out LTE and other 4G wireless capabilities which improve the speed at which users can consume video and other data-intensive content, but the capabilities of tablets already put pressure on these networks. For example, apps created for the newest iPad must contain graphics with a much higher resolution than previous generations. This will result in larger graphic files, nearly doubling the overall size of many apps. In order to limit the wireless bandwidth consumed by purchasing apps from Apple's App Store, apps over 50MB in size can only be purchased through a WiFi connection, not through 3G or LTE networks. This is an increase from the 20MB limitation just a few months ago, and reflects the more data intensive requirements of the latest devices. But that's still not enough. Studies have shown that eliminating consumers' ability to buy apps over 3G or LTE networks depresses sales by 40%.

As faster 4G wireless networks are rolled out, the spectrum shortage will only get worse. It has been estimated that in 2011, the average 4G connection generated 28 times more traffic than the average non-4G connection. Mobile data traffic is further expected to increase 18-fold between 2011 and 2016.

Continued innovation will make spectrum use more efficient, but also increase demand for ever-more spectrum. While app developers have cheered the recent legislation authorizing spectrum incentive auctions and more unlicensed spectrum, new and existing spectrum <u>must</u> be administered in the most effective way possible, and secondary markets must be allowed to function, bringing new spectrum to customers right now.

<u>International Opportunities Have New Risks</u>

While piracy has historically posed a challenge for developers across the world, the emergence of mobile app stores has offered a partial reprieve. Apple, Microsoft, and Blackberry sell apps in curated stores. Phone users can only install apps through a store that reviews each piece of software before approving its admission. Although some developers chafe at the control these stores exert and the conditions required in the approval process, they largely appreciate that stores greatly cut down on the piracy rate.

Each app installation from a curated store—even free apps—involves a transaction record. This has cut down on pirated sales, relegating them to open platforms such as Android where they proliferate as free downloads. It is still possible to hack phones to provide access to alternative app stores where pirated apps can be found, but this involves technical expertise and voids the

terms of service. Since this action denies the user access to technical support, upgrades, and virus protection, most Americans opt not to pursue this illicit route.

In China, however, this has not been the case for multiple reasons. The incidence of hacked or "jailbroken" phones is high with estimates as great as 60%. Combined with China's traditionally lax enforcement of intellectual property rights, U.S. developers' export opportunities could be limited at the very time they should be rising.

Healthcare Needs Disruptive Change, but Not at the Cost of Safety

App developers have seen enormous growth in the healthcare space, but confront significant barriers to entry created by regulatory rules that have not kept pace. HIPPA is a critical regulation for protecting the privacy of patients, but its implementation can create challenging barriers for the display and storage of a patient's information, barriers which neither enhance care, nor privacy protection.

FDA regulations governing what app is and isn't a medical device have been slow to materialize.   We are cautiously optimistic that the FDA will publish its final guidance soon, and we expect it will take the "light touch" approach specified by Dr. Jeff Shuren, the FDA's director of the Center for Devices and Radiological Health.

However the contours of the FDA's definitions have significant consequences for businesses and innovation. Questions remain regarding what qualifies as a regulated mobile medical app and what apps the agency will not regulate. Similar questions exist regarding the scope of regulation for clinical decision support software. When developers cannot tell the precise contours of a regulation, it suppresses and delays innovation – innovation that can lead to thousands of jobs while also improving Americans' healthcare.

We hope to work closely with the FDA and members of the committee to make sure that the FDA provides useful guidance, applicable in real world situations, about what is subject to, and exempt from, regulation.

We encourage the FDA to provide extensive examples and meaningful rules to define the scope of regulation. Additionally, we ask that the agency clarify the process steps (*e.g.* online documents, online submission). Clear rules that are easy to apply will encourage developers to create useful, innovative applications instead of sitting on the sidelines because of uncertainty around status and timeliness of FDA decisions.

The Future is Inconceivable.

In the movie *The Princess Bride*, the protagonist famously responded to the word "Inconceivable" with the retort "You keep using that word. I do not think it means what you think it means." But for the future of the apps economy, "Inconceivable" is the most appropriate word. Industry and government cannot yet conceive of the ways that apps will become part of our lives.

From basic consumer uses to health, travel, education, and even talking to one another, our app economy (built by small businesses seeing and meeting a specific need) has endless and inconceivable possibilities.

We hope to keep creating never before conceived of products, and we hope that government can be a partner where needed, take advantage of products where they help serve the public, and take a light touch approach everywhere else.

Thank you for your interest and I look forward to your questions.

[i] Clint Boulton, "Apple, Google Lead $3.8B Mobile App Charge: IHS" eWeek.com(May 5, 2011) *available at* http://www.eweek.com/c/a/Mobile-and-Wireless/Apple-Google-Lead-38B-Mobile-App-Charge-IHS-512817/
[ii] "How Big is the US App-Economy? Estimates and Forecasts 2011-2015" Appnation and Rubinson Partners, Inc. (November 30 – December 1, 2011) *available at* http://www.slideshare.net/joelrubinson/an3-us-appeconomy20112015
[iii] "Small Business Economy 2011" Small Business Administration Office of Advocacy (2011), *available at* http://www.sba.gov/sites/default/files/SBE_2011_2.pdf.
[iv] Jack Kent, "In-App Purchases Will Dominate the Smartphone App Business," IHS (January 17, 2012), *available at* http://www.isuppli.com/Media-Research/News/Pages/In-App-Purchases-Will-Dominate-the-Smartphone-App-Business.aspx; Molly Wood, "How to Make Money on Mobile, in Three Easy Steps," CNET (June 1, 2012), *available at* http://news.cnet.com/8301-31322_3-57445089-256/how-to-make-money-on-mobile-in-three-easy-steps/?tag=mncol;txt.